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VERIFICATION OF TRANSLATION

International Application PCT/EP 03/06024 of 10.06.2003

I, (Name and address of translator)

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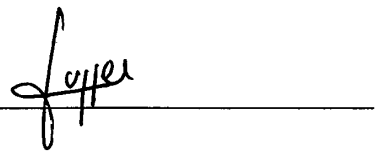
am the translator of the amendments as annexed to the IPER and I state that the following is a true translation to the best of my knowledge and belief.

Signature of translator : 

Dated : Marin, December 7, 2004

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Marc Supper
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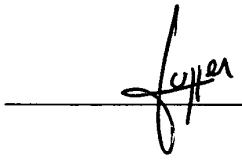
am conversant in the English language and I state that the following is a true translation to the best of my knowledge and belief of the International Application PCT/EP 03/ 06024 dated June 10, 2003.

Signature of translator : 

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ART 34 AMDT

CLAIMS

1. Method of manufacturing at least one device (2, 30, 48) defining a volume (8) for retaining a fluid or a sensitive material that is capable of changing its physical properties, particularly its optical properties, via the application of a voltage, or its electrical properties via stress or radiation, said device (2, 30, 48) including at least a first front substrate (4, 38, 56) and at least a second back substrate (6, 32, 50) maintained at a constant distance from each other, these two substrates (6, 32, 50; 4, 38, 56) being joined by a sealing joint (24, 46, 72) which defines the volume (8) for retaining the sensitive medium or fluid,

said method being characterised in that it includes the steps of:

- structuring at least one wall (12, 44, 66), which defines via its inner lateral face the volume (8) for retaining the sensitive medium or fluid, on one of the substrates (6, 32, 50);

- joining the second substrate (4, 38, 56) to the first substrate (6, 32, 50);

- introducing a sealing material capable of flowing into the gap (22) defined by the outer lateral face of the wall (12, 44, 66) and the two superposed substrates (6, 32, 50; 4, 38, 56) until at least a part of the volume of said gap (22) is occupied by the sealing material, and

- solidifying the sealing material so that the latter forms the sealing frame (26, 46, 72).

2. Method according to claim 1, characterised in that it includes the steps of:

- structuring, on one of the substrates (6, 32, 50), at least one filling channel (22) defined by two walls (10, 12), which extend at a distance from each other;

- joining the second substrate (4, 38, 56) to the first substrate (6, 32, 50);

- introducing a sealing material capable of flowing into the filling channel (20) until the entire volume of said filling channel (20) is occupied, and

- solidifying the sealing material so that the latter forms the sealing joint (26, 46, 72).

3. Method according to claim 2, characterised in that a batch of devices (2, 30, 48) is made including two plates (74, 6) common to all of the devices and a network of sealed walls (10, 12) defining, for each device, a volume (8) for retaining the sensitive medium or fluid as well as the filling channels (20) which are to be filled with a sealing material to connect the two plates (74, 76) and to form the sealing joints of said devices.

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4. Method according to claim 3, characterised in that a first plurality of holes (16) for filling the volumes (8) with the fluid or sensitive material, and a second plurality of holes (18) for feeding the sealing material, are made in one of the plates (74, 76).

5. Method according to any of claims 3 or 4, characterised in that one filling channel (20) is shared by at least two adjacent devices.

6. Method according to any of claims 1 to 5, characterised in that the sealing material penetrates the filling channel (20) or the gap (22) by capillary action.

7. Method according to claim 6 in that it depends upon any of claims 2 to 5, characterised in that it includes the additional steps of:

- creating a vacuum in the filling channel (20);
- causing the sealing material to enter said filling channel (20), and
- re-establishing the pressure outside the cell (2, 30, 48) such that, via the pressure difference between the filling channel (20) in which the vacuum prevails and the ambient pressure, the sealing material is driven to the bottom of the filling channel (20).

8. Method according to any of claims 1 to 7, characterised in that a layer of photoresist material, which will subsequently be structured by photo-etching techniques to give it the shape of one or several walls (10, 12; 44, 66), is deposited on one of the substrates (6, 32, 50).

9. Method according to claim 8, characterised in that the photoresist layer is structured so as to form, not only the wall or walls (12, 12), but also spacer structures (14) for maintaining a constant distance between the two substrates (4, 6) of the cell (2).

10. Method according to any of claims 1 to 7, characterised in that the wall or walls (10, 12; 44, 66) are structured by a selective technique for depositing the sealing material.

11. Method according to claim 10, characterised in that the wall or walls (10, 12; 44, 66) are structured by screen printing.

12. Method according to claim 10, characterised in that the wall or walls (10, 12; 44, 66) are structured by means of a seringe type dispenser.

13. Method according to any of claims 1 to 12, characterised in that the sealing material is selected from the group formed by resins that can be polymerised by sensitisation using a light or by heating by raising the temperature of the ambient medium, by cyanoacrylate adhesives, by thermoplastic resins and by dual component adhesives whose components harden over time or via a rise in temperature when they are placed in each other's presence.

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14. Device (2, 30, 48) defining a volume (8) for confining a fluid or sensitive material capable of changing its physical properties, particularly its optical properties, via the application of a voltage, or its electrical properties, via stress or radiation, said device (2, 30, 48) including at least a first front substrate (4, 38, 56) and at least a second back substrate (6, 32, 50) maintained at a constant distance from each other, these two substrates (6, 32, 50; 4, 38, 56) being joined by a sealing joint (24, 46, 72) which defines the volume (8) for retaining the sensitive medium or fluid,

said device being characterised in that the sealing joint (26, 46, 72) at least partly occupies the gap defined by said substrates and the outer lateral face of a wall (12, 44, 66) structured on one of the substrates (4, 38, 56), said wall defining by its inner lateral face the volume (8) for retaining the sensitive material or fluid.

15. Device according to claim 14, characterised in that the sealing joint (26, 46, 72) is formed by a filling channel (20) defined by two walls (10, 12) which extend at a distance from each other over the substrate (6) on which said walls are formed, said filling channel (20) being intended to be filled with a sealing material.

16. Device according to claim 15, characterised in that at least one hole (18) communicating with the filling channel (20) and for feeding the sealing material is made in one of the substrates (4, 6) or in the wall (10).

17. Device according to any of claims 14 to 16, characterised in that it forms an electro-optical cell, particularly a liquid crystal cell, an electrochemical photovoltaic cell or a fluidic type micro-system.